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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,175	06/24/2003	Eugene B. Hinterscher	TI-36136	9443

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EXAMINER

NGUYEN, LONG T

ART UNIT	PAPER NUMBER
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2816

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/602,175

Applicant(s)

HINTERSCHER, EUGENE B.

Examiner

Long Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/24/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 3 and 4 are objected to because of the following informalities:

In claim 3, line 15, "a voltage" should be changed to --another voltage-- to avoid unclear antecedent basis problem since "a voltage" already recited on line 13 of the same claim.

Claim 4 is objected to because it includes the minor informalities of claim 3.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 2, the recitation "further comprising a tristate circuit adapted to cause the output node to be in a tristate condition in response to a tristate enable input signal" appears to be misdescriptive because it is inconsistent with what is disclosed and shown. As it is seen in Figure 1 of the drawings, the pre-driver (11, 12) receiving the tristate enable input signal for causing the output node to be in a tristate condition. Thus, it appears that there is no such tristate circuit (beside the damping control circuit branch, the output transistor and the predriver circuit) in the output circuit. Clarification and/or appropriate correction is requested.

With respect to claim 4, this claim is indefinite for the similar reasons as discussed in claim 2 above. Note that Figure 1 shows the upper pre-driver circuit (11) and the lower pre-

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driver circuit (12) receive the tristate enable signal (tri) for causing the output node (out) to be in a tristate condition, and there is no such tristate circuit (beside the upper damping control circuit branch, a lower damping control circuit branch, an upper output transistor, a lower output transistor, an upper predriver circuit, and a lower predriver circuit) in the output circuit.

Clarification and/or appropriate correction is requested.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Bancal (USP 6,028,574).

With respect to claim 1, Figure 5 of the Bancal reference discloses an output circuit, which includes: a damping control circuit branch (D22, R5) comprising a resistor (R5) and a diode (D22) connected in parallel between a first node (junction connection of transistor M5 and diode D22 and resistor R5) and a second node (20), the second node (20) being coupled to an output node (20); an output transistor (MN) coupled by its source and drain between a power supply (ground supply M) and the second node (junction connection of transistor M5 and diode D22 and resistor R5), and having a gate (gate of MN); and a predriver circuit (R4) receiving an input signal (CN) and provide a voltage at the gate (gate of MN).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ten Eyck (USP 6,137,322) in view of Lin (USP 6,552,594).

With respect to claims 1-4, Figure 1 of the Ten Eyck reference discloses an output circuit, which includes: a pull-up circuit (28) including an upper output transistor (28) connected between a power supply (38) and an output node (42); a pull-down circuit (22) including a lower output transistor (22) connected between ground (40) and the output node (42); an upper pre-driver circuit (23, 24, 26, 27) receiving an input signal (34) and provide a voltage at the gate of the upper output transistor (28); and a lower pre-driver circuit (20, 21, 29, 30) receiving the input signal (34) and provide another voltage at the gate of the lower output transistor (22). The Ten Eyck reference does not disclose that the pull-up circuit including an upper damping control circuit connected between the upper output transistor and the output node, and the pull-down circuit including a lower damping control circuit connected between the lower output transistor and the output node, wherein the upper damping control circuit comprising a first diode and a first resistor connected in parallel, and wherein the lower damping control circuit comprising a second diode and the second resistor connected in parallel. However, the Lin reference discloses in Figure 11A an output circuit that includes a pull-up circuit (60) and a pull-down circuit (62), wherein the pull-up circuit (60) including a resistance modulator (the diode and resistor

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connected in parallel in the pull-up circuit 60 in Figure 11A) connected between the upper output transistor (P1) and the output node (64), and the pull-down circuit (62) including another resistance modulator (66) connected between the lower output transistor (N1) and the output node (64) for the purpose of suppress the voltage ringing and overshooting (lines 12-37 of Col. 6, and lines 11-24 of Col. 7). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the circuit in Figure 1 of the Ten Eyck reference by providing the output circuit in Figure 1 of the Ten Eyck reference with a first resistance modulator connected between the upper output transistor and the output node, and a second resistance modulator connected between the lower output transistor and the output node, wherein the first resistance modulator comprising a first diode and a first resistor connected in parallel, and the second resistance modulator comprising a second diode and the second resistor connected in parallel as taught in Figure 11A of the Lin reference for the purpose of voltage ringing and overshooting suppression. Thus this modification/combination meets all the limitations of claims 1-4. Note that the upper damping circuit and the lower damping circuit are the first resistance modulator and the second resistance modulator, respectively. Also note that, in Figure 1 of the Ten Eyck reference, the upper and lower pre-driver circuits receive the tristate enable signal (36) for causing the output node (42) to be in a tristate condition in response the tristate enable input signal (36).

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Conclusion

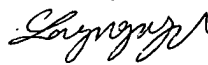
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Long Nguyen whose telephone number is (571) 272-1753. The Examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached at (571) 272-1740. The fax number for this group is (703) 872-9306.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0956.

February 26, 2004



Long Nguyen
Primary Examiner, AU 2816